CLAIMS:

1. A transmission method in a base transceiver station of a cellular telecommunication system, the base transceiver station applying antenna hopping between at least two antenna elements, the method comprising:

transmitting a carrier carrying a first signal and a second signal, at least a portion of the first signal being subjected to a measurement for adjusting receive characteristics of a mobile station for a reception of at least a portion of the second signal; and

applying antenna hopping to the carrier such that the at least a portion of the first signal and the at least a portion of the second signal are transmitted during an interval between two consecutive antenna hops between at least two antenna elements.

2. A method according to claim 1, wherein the transmitting step comprises transmitting the carrier carrying the first signal, at least a portion of which is subjected to a power measurement for adjusting receive gain of the mobile station for the reception of the at least a portion of the second signal.

3. A method according to claim 1, further comprising:

timing an antenna hop in a carrier transmission with respect to a signal transition from the first signal to the second signal such that there is a predetermined time gap between the signal transition and the antenna hop between the at least two antenna elements; and

performing the antenna hop based on timing of the antenna hop.

4. A method according to claim 1, wherein the transmitting step comprises transmitting the carrier carrying the first signal and the second signal consecutively.

5. A method according to claim 1, wherein the applying step comprises applying the antenna hopping to the carrier according to a

predetermined antenna hopping sequence comprising at least one antenna hop interval between two consecutive antenna hops, the antenna hopping sequence defining at least one of the following:

antenna weighting applied to the at least two antenna elements during an antenna hop interval; and

timing of the antenna hops.

6. A method according to claim 5, wherein the applying step comprises applying the antenna hopping to the carrier according to the antenna hopping sequence optimized based on at least one criterion selected from a group comprising:

effect of the antenna hopping sequence on a performance of a traffic channel carried by the carrier;

effect of the antenna hopping sequence on a performance of a common control channel carried by the carrier;

effect of the antenna hopping sequence on a performance of a broadcast channel carried by the carrier;

effect of the antenna hopping sequence on a performance of a dedicated control channel carried by the carrier;

feedback information from the mobile station; and

effect of the antenna hopping sequence on the capacity of a cellular telecommunication system.

7. A method according to claim 5, wherein the applying step comprises applying antenna hopping to the carrier according to an antenna hopping sequence which maximizes the de-correlation of at least one channel carried by the carrier within at least one interleaving period.

8. A method according to claim 1, wherein the transmitting step comprises transmitting the carrier carrying the second signal transferring a channel selected from a group comprising at least one of:

a broadcast channel; and
a common control channel.

9. A method according to claim 1, wherein the transmitting step comprises transmitting the carrier carrying a third signal transferring a channel selected from a group comprising at least one of:

a traffic channel; and
a dedicated control channel.

10. A method according to claim 1, further comprising applying frequency hopping to a transmission of a base station by using the carrier.

11. A method according to claim 1, wherein the transmitting step comprises transmitting the carrier carrying the first signal including a first time slot and the second signal including a second time slot, at least a portion of the first time slot being subjected to a measurement for adjusting the receive characteristics of the mobile station for the reception of at least a portion of the second time slot; and

wherein the applying step comprises applying the antenna hopping to the carrier such that the at least a portion of the first time slot and the at least a portion of the second time slot are transmitted during an interval between the two consecutive antenna hops.

12. A base transceiver station of a cellular telecommunication system, the base transceiver station comprising:

a signal generating unit for generating a first signal and a second signal, the first signal being subjected to a measurement for adjusting receive characteristics of a mobile station for a reception of at least a portion of the second signal;

a transmitter unit connected to the signal generating unit for generating a carrier carrying the first signal and the second signal;

at least two antenna elements operationally connected to the transmitter unit for transmitting the carrier carrying the first signal and the second signal; and

an antenna hop generator operationally connected to the transmitter unit for applying at least two antenna hops to the carrier such that the at least a portion of the first signal and the at least a portion of the second signal are transmitted during an interval between two consecutive antenna hops between at least two antenna elements.

13. A base transceiver station according to claim 12, wherein the signal generating unit is configured to generate the first signal, at least a portion of which is subjected to a power measurement for adjusting receive gain of the mobile station for the reception of the at least a portion of the second signal.

14. A base transceiver station according to claim 12, wherein the antenna hop generator is configured to time an antenna hop in a carrier transmission with respect to a signal transition from the first signal to the second signal such that there is a predetermined time gap between the signal transition and the antenna hop between the at least two antenna elements; and

wherein the antenna hop generator is configured to perform the antenna hop based on timing of the antenna hop.

15. A base transceiver station according to claim 12, wherein the transmitter unit is configured to generate the carrier carrying the first signal and the second signal consecutively.

16. A base transceiver station according to claim 12, further comprising:

an antenna hop controller connected to the antenna hop generator, the antenna hop controller for providing a predetermined antenna hopping sequence comprising an antenna hop interval between two consecutive antenna hops, the antenna hopping sequence defining at least one of the following: antenna weighting applied to the at least two antenna elements during the antenna hop interval, and timing of the antenna hops; and

wherein the antenna hop generator is configured to apply the at least two antenna hops to the carrier according to the antenna hopping sequence.

17. A base transceiver station according to claim 16, wherein the antenna hop controller is configured to provide an antenna hopping sequence which maximizes a de-correlation of at least one channel carried by the carrier within at least one interleaving period.

18. A base transceiver station according to claim 16, wherein the antenna hop controller is configured to provide an antenna hopping sequence optimized based on at least one criterion selected from a group comprising:

effect of the antenna hopping sequence on a performance of a traffic channel carried by the carrier;

effect of the antenna hopping sequence on a performance of a common control channel carried by the carrier;

effect of the antenna hopping sequence on a performance of a broadcast channel carried by the carrier;

effect of the antenna hopping sequence on a performance of a dedicated control channel carried by the carrier;

effect of the antenna hopping sequence on a capacity of a cellular telecommunication system; and

feedback information from the mobile station.

19. A base transceiver station according to claim 12, wherein the signal generating unit is configured to generate the second signal transferring a channel selected from a group comprising at least one of:

a broadcast channel; and

a common control channel.

20. A base transceiver station according to claim 12, wherein the signal generating unit is configured to generate a third signal transferring a channel selected from a group comprising at least one of: a traffic channel, a dedicated control channel; and

the transmitter unit is configured to generate the carrier carrying the third signal.

21. A base transceiver station according to claim 12, wherein the transmitter unit is configured to generate a plurality of carriers; and

wherein the transmitter unit is configured to apply frequency hopping to a transmission of the base station by using the carrier.

22. A base transceiver station according to claim 12, wherein the signal generating unit is configured to generate the first signal including a first time slot and the second signal including a second time slot, at least a portion of the first time slot being subjected to a measurement for adjusting the receive characteristics of the mobile station for the reception of at least a portion of the second time slot; and

wherein the antenna hop generator is configured to apply antenna hopping to the carrier such that the at least a portion of the first time slot and the at least a portion of the second time slot are transmitted during an interval between the two consecutive antenna hops.

23. A base transceiver station of a telecommunication system, the base transceiver station comprising:

transmitting means for transmitting a carrier carrying a first signal and a second signal, at least a portion of the first signal being subjected to a measurement for adjusting receive characteristics of a mobile station for a reception of at least a portion of the second signal; and

applying means for applying antenna hopping to the carrier such that the at least a portion of the first signal and the at least a portion of the second signal are transmitted during an interval between two consecutive antenna hops between at least two antenna elements.